

REMARKS

Applicants respectfully request entry of the foregoing and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow.

Claims 15-19, 21-25 and 29-33 are pending in the application, claim 23 having been cancelled above without prejudice to or disclaimer of the subject matter therein.

By the above amendments, Applicants amended Claim 15 to further clarify that the thermoplastic polymer is a polyamide. Applicants also cancelled claim 20 without prejudice or disclaimer in view of the amendment to claim 15.

Applicants thank the Examiner for consideration and entry of Applicants' Request for Continued Examination (RCE). In view of the foregoing amendments and following remarks, Applicants respectfully submit that all pending claims in the application are in condition for allowance.

Turning now to the Official Action, claims 15, 17, 20-22, 24-25 and 29-31 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Minami* (U.S. Patent No. 3,709,806). Also, claims 15-18, 21, 24-25 and 30-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Fujie* (U.S. Patent No. 4,644,013). For at least the reasons that follow, reconsideration and withdrawal of the § 102(b) rejections over *Minami* and *Fujie* are in order.

Independent claim 15, as amended above, defines a process for preparing a pearl based on expanded polymer and having a continuous skin, the process comprising the following successive steps:

- a) extruding an expandable composition comprising a thermoplastic polymer and an expanding agent, in molten state, to effect expansion thereof, and
 - b) cooling using a liquid and chopping the expanded material thus obtained, wherein the step of cooling and chopping is performed at the die outlet and wherein the prepared pearl is a spherical article with its largest dimension being less than or equal to 15mm, and wherein the thermoplastic polymer is a polyamide.
- (Emphasis added.)

Minami relates to a process for manufacturing foamable polyolefin particles. In the process, a polyolefin resin is blended with a hydrocarbon additive, which has a

boiling point which is higher than the melting point of the polyolefin resin and a chemical blowing agent which decomposes into gas upon being heated. (See *Minami* at column 1, lines 15-21.)

Fujie relates to foam particles of an uncrosslinked ethylenic resin and foam moldings prepared therefrom and methods for their preparation. More particularly, it pertains to foam particles of a linear ethylenic resin which can be expansion molded by heating in an uncrosslinked state and from moldings prepared therefrom, said resin being a specific linear ethylenic resin capable of providing in-mold foam moldings, which possess excellent properties when compared with in-mold foam molding of uncrosslinked polyethylene resins prepared by the process of the prior art. (See *Fujie* at column 1, lines 5-21.)

It is well-established that a claim is anticipated only if each and every element set forth in the claims is found, either expressly or inherently described, in a single prior art reference. (See *Verdegaal Bros. v. Union Oil Company of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) and M.P.E.P. § 2131.01.) That is not case here.

As indicated above, *Minami* relates to foamable polyolefin particles and *Fujie* also relates to fabrication of polyolefin foam particles. Neither reference, however, expressly or inherently describes a process for preparing a pearl based on expanded polymer having a continuous skin, wherein the process comprises the recited steps and wherein the thermoplastic polymer extruded in an expandable composition is a polyamide, as specified in claim 15, as amended above.

Accordingly, the § 102(b) rejections over *Minami* and *Fujie* should be reconsidered and withdrawn.

Claims 15, 17, 20-22, 24-25 and 29-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Minami* in view of either *Cates* (U.S. Patent No. 5,284,433) or *Bruckmann* (U.S. Patent No. 5,059,103). Claims 15-18, 21, 24-25 and 30-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fujie* in view of *Cates* or *Bruckmann*. Claims 16, 22 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fujie* in view of either *Cates* or *Bruckmann* further in view of *Lesca* (U.S. Patent No. 5,324,753). Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fujie* in view of *Cates* or *Bruckmann*

and further in view of *Amano* (U.S. Patent No. 5,234,640). Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fujie* in view of either *Cates* or *Bruckmann* further in view of *Pontiff* (EP 0450205). Claims 15-16, 18, 21-22, 24-25 and 29-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fischer* (U.S. Patent No. 5,744,505) in view of any one of *Hunke* (U.S. Patent No. 4,838,775) or *Rockstedt* (U.S. Patent No. 5,814,350) or *Mattera* (U.S. Patent No. 5,215,763). Claim 19 is also rejected under 35 U.S.C. § 103(a) in view of *Fischer* in view of any one of *Hunke* or *Rockstedt* or *Mattera* further in view of *Amano*. Finally, claim 20 is also rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fischer* in view of any one of *Hunke* or *Rockstedt* or *Mattera* further in view of *Pontiff*. For at least the reasons that follow, withdrawal of all the above § 103(a) rejections is in order.

Independent claim 15 is recited above. Each of the various rejected dependent claims depends, directly or indirectly, from independent claim 15 and, therefore, necessarily includes all of the features in the combination of features defined in independent claim 15.

Minami is defined above.

Cates relates to an apparatus for cutting molten extruded strands of extruded thermoplastic into pellets. More specifically, it relates to an improved rotary cutter apparatus who's knife-blades cut strands of molten polymer extruding from a die, each knife-blade cutting-edge being independently maintained in contact with the die-face by means of a controlled spring mechanism. (See *Cates* at column 1, lines 5-15.)

Bruckmann relates to an underwater pelletizer in which a molten polymer is extruded through die orifices in a die plate in the form of continuous strands that are cut into pellets by a rotatable knife assembly having sharp edges engaged with a die face, which includes the discharge ends of the die orifices. More specifically, it relates to an underwater pelletizer of simple but yet efficient and dependable construction in which the rotatable blade assembly associated with the die face is driven from a standard foot mounted electric motor having a standard C-flange attachment in which the pelletizer shaft is key to the motor shaft and held in place by

a set screw with the key being welded in a slot in the pelletizer shaft to facilitate its manufacturer. (See *Bruckmann* at column 1, lines 5-20.)

Fujie is described above.

Lesca relates to a process for preparing foam beads of propylene polymers, as well as to the foamed beads thus obtainable and to a process for preparing foamed propylene polymer articles by using said beads. (See *Lesca* at column 1, lines 5-10.)

Amano relates to a process of producing a thermoplastic polyester series resin foamed material or molding thereof. More particularly, it relates to a process of producing a thermoplastic polyester series resin foamed material or molding thereof having uniform and fine cells therein, and high expansion ratio, and excellent heat resistance, and high rigidity. (See *Amano* at column 1, lines 5-12.)

Pontiff relates to a process for producing shrunken moldable beads of foam thermoplastic polymers, e.g., polyolefins and particularly beads of crosslinked polyolefins. (See *Amano* at page 2, lines 5-10.)

Fischer relates to prefoamed polyolefin beads produced by extrusion followed by granulation. (See *Fischer* at column 1, lines 1-5.)

Hunke relates to a device for granulating strands of thermoplastic materials that are discharged molten from several nozzles side by side, with a cutter roll acting as a counter knife and a feed device filled with cooling water located prior to the cutter roll. (See *Hunke* at column 1, lines 5-11.)

Rockstedt relates to a hot-cut pelletizer for thermoplastics, having a housing which is designed as a hollow rotational body and the interior space of which is supplied with polymer melt, which is forced through channels passing radially through the housing wall and is cut into pellets by cutters which rotate in a substantially water-free space and slide over the openings of the channels along a cutting face running around the housing wall. (See *Rockstedt* at column 1, lines 1-12.)

Mattera relates to an apparatus for converting liquid polymers into pellet form. More particularly, it relates to pelletizers in which the severed pellets fall from cutter knives into a cooling liquid, generally water, as distinguished from underwater

pelletizers in which polymer is extruded from dies directly into a body of water in which the pellets are severed. (See *Mattera* at column 1, lines 5-12.)

In order to establish a *prima facie* case of obviousness, the cited prior art reference (or references when combined) must teach or suggest all of the claimed features. (See, *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).) In addition, "all words in a claim must be considered in judging the patentability of that claim against the prior art." (See, *In re Wilson*, 424 F.2d 1382, 1385; 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).) (See, also M.P.E.P. § 2143.03).

For at least the following reasons, these requirements, and several others, have not been met. First, with respect to the primary references, namely, *Minami*, *Fujie* and *Fischer*, Applicants respectfully submit that none of these references discloses or fairly suggests each feature in the combination of features recited in claim 15, which is necessarily present in each of the rejected dependent claims. Moreover, none of the cited secondary references overcome the deficiencies of *Minami*, *Fujie* and *Fischer*. Specifically, none of the cited references, alone or in combination, discloses or fairly suggests a process for preparing a pearl based on expanded polymer and having a continuous skin, wherein the process comprises the steps defined in claim 15, including the step of extruding an expandable composition comprising a thermoplastic polymer and an expanding agent, in a molten state, to effect expansion thereof, wherein the thermoplastic polymer is a polyamide, as specified in independent claim 15, as amended above.

Accordingly, for at least this reason, and because the combination of references cited for each § 103 rejection above does not reflect a proper consideration of all words in claim 15, including, *inter alia*, the words "wherein the thermoplastic polymer is a polyamide," a *prima facie* case of obviousness has not been established over any of the recited combinations of references.

In addition to each of the recited combinations of references failing to teach or suggest each feature in the claimed combination of features defined in independent claim 15, and necessarily present in each of the rejected dependent claims, it is well-established that the Patent Office bears the burden of establishing *why* one of ordinary skill in the art would have been led to modify the processes of the primary references (*Minami*, *Fujie* and *Fischer*), directed to different materials than the

polyamide thermoplastic polymer defined in claim 15, by adding selected features from the cited secondary references to arrive at the claimed process. The requisite motivation for doing so must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art, not from Applicants' disclosure. (See, *Ex Parte Nesbitt*, 25 U.S.P.Q. 2d 1817, 1819 (B.P.A.I. 1992); and *In re Oetiker*, 24 U.S.P.Q. 2d 1443, 1446 (Fed. Cir. 1992).) Here, none of the primary references, alone or in combination with any of the cited secondary references, nor any other evidence in the Official Action provides any motivation for one of ordinary skill in the art to modify the described processes of the primary references directed to materials that are different from the polyamide polymer defined in claim 15 to arrive at the claimed process.

In particular, *Minami* describes a process for the preparation of radiation-crosslinkable foamable polyolefin particles with the main objective being to avoid foaming of particles after extrusion and instead proceeding with foaming during a further crosslinking process. There is nothing in *Minami* or any other cited reference or any other evidence in the Official Action, which would have led one of ordinary skill in the art to select the process of *Minami* and modify it for polyamide processing in which foaming occurs during extrusion and not during the crosslinking process, as described in *Minami*.

Likewise, *Fujie* discloses fabrication of polyolefin foam particles without using classic crosslinking processes for polyolefin. This process is expected to be performed with the specific use of ethylenic resins providing physical and chemical properties: molecular weight distribution $M_w/M_n > 15$, a bimodal wave form in the curve of molecular weight distribution and a density $> 0.920\text{g/cm}^3$. Applicants respectfully submit that there is no evidence in *Fujie* or any other cited reference or any other evidence in the Official Action that would have led one of ordinary skill in the art to modify the process of *Fujie* focused on specific ethylenic resins so that the process would instead be useful for polyamide formulations, as claimed.

Similarly, *Fischer* is directed to processes that are different from the process of claim 15 and there is no disclosure or suggestion in *Fischer* or in any other cited reference or any other evidence in the Official Action that would have led one of ordinary skill in the art to look to modify the processes of *Fischer* to arrive at a

process including all of the claimed features defined in claim 15 for processing of a polyamide.

Furthermore, the Official Action has also not established any reasonable expectation of success. That is, beyond looking to the cited references to determine if they suggest doing what the inventors have done, one must also consider if the references provide the required expectation of succeeding in that endeavor. (*See In re Dow Chem. Co. v. American Cyanamid*, 837 F.2d at 473, 5 U.S.P.Q.2d at 1531 (both the suggestion and the expectation of success must be found in the prior art, not in Applicant's disclosure).) Here, the cited references provide neither a suggestion nor an expectation of success in doing with the inventors have done (*i.e.*, developing a process for preparing a pearl based on expanded polymer and having a continuous skin, the process comprising the various defined steps wherein the thermoplastic polymer is a polyamide, as defined in claim 15).

For at least these reasons, Applicants submit that independent claim 15 is patentable over each of the recited combinations of references. The rejected dependent claims depend, directly or indirectly, from claim 15 and are, therefore, also patentable over each of the cited combinations of references for at least the reasons that claim 15 is patentable. Reconsideration and withdrawal of the above § 103(a) rejections are respectfully requested.

From the foregoing, Applicants earnestly solicit further and favorable action in the form of a Notice of Allowance.

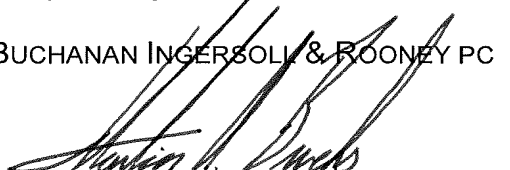
If there are any questions concerning this paper or the application in general, Applicants invite the Examiner to telephone the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

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